

Appl. No. : 10/764,832
Filed : January 26, 2004

REMARKS

Claims 1-16 were pending in this application prior to the abovementioned amendments. Claims 1-13, 15 and 16 are objected to for various informalities. Claim 14 is herein canceled. Claims 1, 2, 4, 15 and 16 have been amended. In sum, Claims 1-13, 15 and 16 remain pending after the above-mentioned amendments.

Applicant submits that this application, as amended, is in condition for allowance and such allowance is earnestly requested. The Examiner's reasons for rejection are addressed below.

Allowable claims

Applicant notes with appreciation the Examiner's indication that Claims 1, 15 and 16 would be allowable if rewritten or amended to overcome the objections set forth in the Office Action. The Examiner's further indication that Claims 2-13 would be allowable, if rewritten to overcome the objections and to include all of the limitations of the base claim and any intervening claims, is also appreciated.

In view of the asserted allowability of amended Claim 1, as discussed below, Applicant declines to rewrite Claims 2 and 3 at this time.

Claim 4 has been rewritten to include the limitations of amended Claim 1, which has been amended to address (see below) the objections set forth by the Examiner. Moreover, Claim 4 recites additional features of advantage and utility. Consequently, Applicant submits that Claim 4 is now allowable.

Claims 5-13 recite additional features of advantage and utility. Moreover, these claims are allowable because they depend from and therefore include all of the limitations of Claim 4. Consequently, Applicant submits that Claims 5-13 are also allowable.

Amendments to the claims

Applicant has amended Claims 1, 15 and 16 to clarify the subject matter of these claims. Claim 1, as amended, recites, *inter alia*, "annealing the fixed layer using a selected profile of temperature and magnetic field as a function of time, the profile selected based on the first thickness of the pinned layer and the second thickness of the reference layer, the profile having a

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maximum magnetic field magnitude (H_{anneal}).” Claim 15, as amended, recites, *inter alia*, “annealing the fixed layer using a selected profile of temperature and magnetic field as a function of time, the profile selected based on the first thickness of the pinned layer and the second thickness of the reference layer.” Claim 16, as amended, recites, *inter alia*, “annealing the synthetic antiferromagnetic layer using a selected profile of temperature and magnetic field as a function of time, the profile selected based on the first thickness and the second thickness.” These amendments are fully supported by the application as originally filed, at, for example, page 7 of the Specification.

Claim 2 has been amended to match follow-on recitations with their antecedents in Claim 1.

Objections to the claims

The Examiner has objected to Claims 1-13, 15 and 16. The Examiner has found that the term “temporal”, as it appeared in original claims 1, 15 and 16, is a “relative term, rendering the claims indefinite.” Office Action at page 2. The Examiner asserts that the Specification “does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.”

In response, Claims 1, 15 and 16 have been amended to clarify claim terms. In particular, Applicant has clarified the time dependence of the temperature/magnetic field profile by amending the claims to recite that the claimed profile of temperature and magnetic field is a function of time. Applicant notes that the claim does not require a single, particular profile. Rather, the profile can vary in different MRAM devices and is defined by the fact that it is chosen based on the thicknesses of the pinned layer and the reference layer (i.e., the profile is dependent on the thicknesses of the pinned layer and the reference layer). See Application at, e.g., pages 7, 16-17. Applicants submit that the art of record does not teach, in combination with the other recited elements, an annealing step in which the anneal is accomplished using a selected profile of temperature and magnetic field as a function of time, with the profile selected based on the thicknesses of the pinned layer and the reference layer in an MRAM device.

Accordingly, Applicant submits that Claims 1, 15 and 16, as amended, are in condition for allowance.

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Claims 2 and 3 recite additional features of advantage and utility. Moreover, these claims are allowable because they depend from and therefore include all of the limitations of Claim 1. Consequently, Applicant submits that Claims 2 and 3 are also allowable.

CONCLUSION

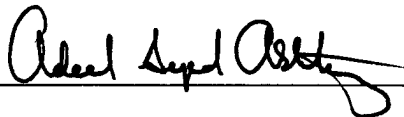
In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance and requests the same. If there is any further hindrance to allowance of the pending claims, the Examiner is invited to contact the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: 

Adeel S. Akhtar
Registration No. 41,394
Attorney of Record
Customer No. 20,995
(415) 954-4114

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